

Notice of Allowability

Application No.

10/617,535

Examiner

Anjan K. Deb

Applicant(s)

KOCH, INGO

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 07/01/2005.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☒ The drawings filed on 19 December 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

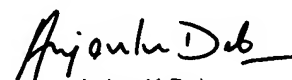
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Anjan K Deb
Primary Examiner
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DETAILED ACTION

1. This office action is in response to amendment filed 07/01/2005.

Allowable Subject Matter

2. Claims 1-25 are allowed.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance of the claims is the inclusion of determining a characteristic variable for the amount of charge, the characteristic variable being derived from the relationship of at least one battery voltage value from the rise phase with respect to at least one battery voltage value from the decay phase or from the relationship of at least one battery current value from the rise phase with respect to at least one battery current value from the decay phase.

As stated in the specification (page 14 [0013][0014]) the method determines the amount of charge Q that can actually be drawn by determining a characteristic variable. The characteristic variable (H) being defined as, $H = V_{an} - V_{ab}$ or $H = V_{an} : V_{ab}$ when battery current is constant (page 12 [0047]).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lewis (US 6,191,723 B1) discloses method of determining capacitance by measuring change in voltage during charging (rise phase) and discharging (decay phase) of the capacitor (Fig. 2 and Fig. 3). Lewis does not disclose the amount of charge that can actually be drawn by a battery.

Anbuky et al. (US 6,924,622 B1) discloses method of determining charge capacity of battery by measuring a change in voltage for at least a part of the time during which the battery voltage initially decreases to a trough voltage and then increases to a plateau voltage (Fig. 1a).


Florina et al. (US 5,432,452) discloses method of determining charge capacity of battery by calculating a quantity representative of the second derivative of the voltage over time (Fig. 3).

While Anbuky et al. and Florina et al. both disclose determining the state of battery by measuring a change in change in battery voltage during a time period comprising a rise phase and a decay phase (Anbuky et al., Fig. 1a)(Florina et al., Fig. 3) they did not explicitly disclose a characteristic variable being derived from the relationship of at least one battery voltage value from the rise phase with respect to at least one battery voltage value from the decay phase or from the relationship of at least one battery current value from the rise phase with respect to at least one battery current value from the decay phase.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lefkowitz Edwards can be reached at 571-272-2180.



Anjan K. Deb

Primary Patent Examiner

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8/22/05

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